

Date: Sat, 28 Aug 93 04:30:27 PDT
From: Ham-Homebrew Mailing List and Newsgroup <ham-homebrew@ucsd.edu>
Errors-To: Ham-Homebrew-Errors@UCSD.Edu
Reply-To: Ham-Homebrew@UCSD.Edu
Precedence: Bulk
Subject: Ham-Homebrew Digest V93 #24
To: Ham-Homebrew

Ham-Homebrew Digest Sat, 28 Aug 93 Volume 93 : Issue 24

Today's Topics:

 DDS article ?
 home-brewed DSP code... suggestions?
 Project 5: 15 meter QRP CW xmtr
 Project 99713.43: 40M QRP CW xmtr (2 msgs)
 SWR Meters

WANTED: Schematics and/or Alignment Procedures for Allied R-100A

Send Replies or notes for publication to: <Ham-Homebrew@UCSD.Edu>
Send subscription requests to: <Ham-Homebrew-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Homebrew Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-homebrew".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 27 Aug 93 14:43:02 GMT
From: uplherc!wpsun4!mb@uunet.uu.net
Subject: DDS article ?
To: ham-homebrew@ucsd.edu

dvarney@jabbah.gb.nrao.edu (DOUGLAS VARNEY) writes:
: Where was that DDS article using the Harris chip and the CA3338 published ?
: Also, the date would be nice.

It was in the August issue of 73.

--Michael Bendio, WT7J
mb@titan.wordperfect.com

Date: 27 Aug 93 16:12:21 GMT

From: idacrd.ccr-p.ida.org!idacrd!n4hy@uunet.uu.net
Subject: home-brewed DSP code... suggestions?
To: ham-homebrew@ucsd.edu

On Program/Data memory requirements for DSP:

I think I programmed all the modems in the AEA DSP1232/2232 and most of the early TAPR/AMSAT (Delanco-Spry) code. Please notice that I said MODEMS. You folks are talking about filters, noise cancellers, adaptive interference removers, etc. These are smaller than modems. NO MODEM THAT I HAVE PROGRAMMED NEEDED MORE THAN 512 WORDS OF PROGRAM MEMORY OR MORE THAN 700 WORDS OF DATA MEMORY. DSP programs are SMALL SMALL SMALL. You are not writing graphics library for pete's sake. The larger modems were the RTTY modems that needed <huge> filters to get better than 'their filter' performance. A PSK modem, 9600 bps FSK modem, A VHF BEL-202 modem, 2400 bps VHF modem, etc. were all under 300 words of program memory and 512 words of data memory with the largest being the differentially encoded QPSK modem (2400 baud). You are not writing programs that have to have 100 K to talk to DOS or Windows!

Bob

--

Robert W. McGwier | n4hy@ccr-p.ida.org
Center for Communications Research | Interests: amateur radio, astronomy, golf
Princeton, N.J. 08520 | Asst Scoutmaster Troop 5700, Hightstown

Date: Fri, 27 Aug 1993 09:35:53 GMT
From: news.Hawaii.Edu!uhunix.uhcc.Hawaii.Edu!jherman@ames.arpa
Subject: Project 5: 15 meter QRP CW xmtr
To: ham-homebrew@ucsd.edu

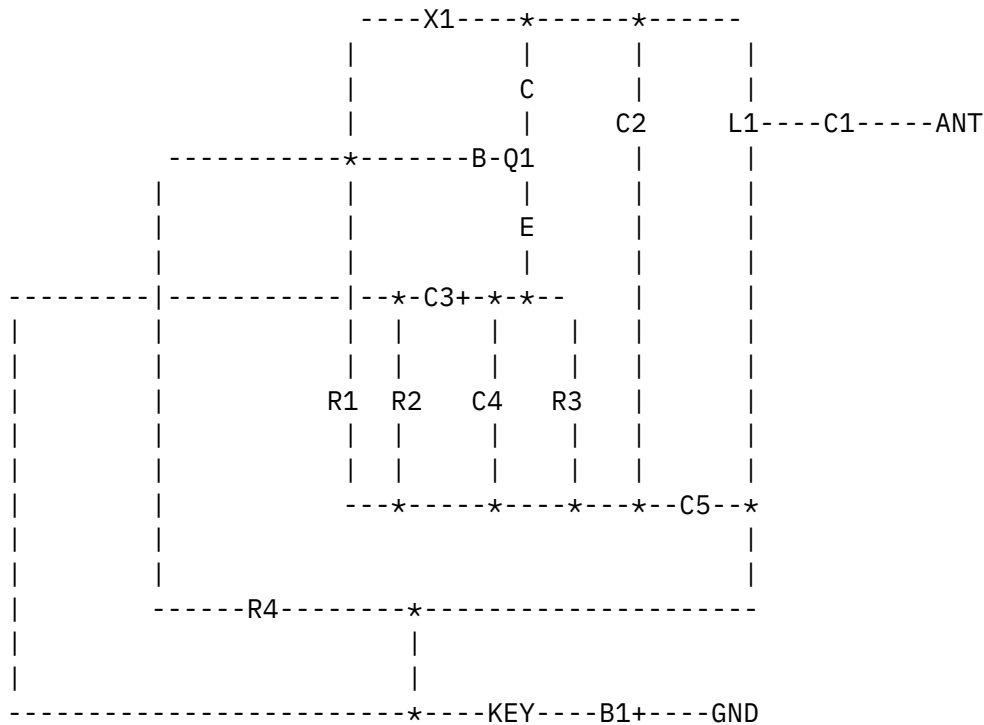
Here's a one transistor flea-power CW xmtr for 15 meters (I'll provide a 2 transistor 1 watt xmtr as the next project for those of you who want to run high power on 15M...)

To tune-up the xmtr, just peak C2 for maximum signal on your receiver's S meter.

Parts list:

Q1 2N373 transistor
C1,5 4700 pF capacitor
C2 3-30 pF trimmer
C3 30 mF
C4 1000 pF

R1 10K resistor
 R2,3 510 ohm
 R4 50K
 B1 9 VDC battery
 L1 17 turns B&W 3007, tapped 8 turns from C5 end
 X1 21 MHz fundamental 3rd overtone crystal



Note the battery's polarity. Recall that * indicates a junction of 3 or more wires; there are 2 jumps - one from R4 and the other from R1.
 Sorry, only straight keys can be used in this xmtr...
 Credit goes to Bert Simon, W2UUN, and his book, 104 HAM RADIO PROJECTS.

Jeff NH6IL

Jeffrey Herman, University of Hawaii Mathematics, jherman@Hawaii.Edu

 Date: Fri, 27 Aug 1993 14:56:03 GMT
 From: dog.ee.lbl.gov!hellgate.utah.edu!csn!teal.csn.org!dfeldman@network.ucsd.edu
 Subject: Project 99713.43: 40M QRP CW xmtr
 To: ham-homebrew@ucsd.edu

OK, I've had it!

Back in high school (circa 1972) I built (out of a hardcover book covering projects like this) a 40M CW transmitter containing:

- 50L6 tube
- xxx ohm 10 watt wire wound resistor (dropped 117VAC to 50VAC filament)
- A couple of 0.01 uF ceramic discs
- A cathode-bias and grid-leak resistor
- A 7143 kHz FT-243 packaged xtal
- A 2.5 mH RF choke
- A single silicon diode
- A 50 uF 150VDC electrolytic cap
- A couple of air-variable caps & a home-wound coil (pi-net)

The thing put out about 4Watts and I keyed it with a straight key.

It chirped like mad.

My RX was an ARC-5 covering 6-9 MHz or so, and powered by a small filament transformer (for the filaments) and another silicon diode and electrolytic cap (and maybe a transformer, I don't remember) for the B+.

Both were tied *in parallel* at the antenna to my 70 ft wire out the bedroom window. No T-R switch; the headphones were simply taken off while transmitting (I'm sure most of the power went into the receiver's static-drain-off NE-2 light).

BTW, this was my first rig and the *total* out-of-pocket cost was about \$5 for *everything* in my shack.

73 Dave WB0GAZ

Date: Fri, 27 Aug 1993 16:37:50 GMT
From: dog.ee.lbl.gov!hellgate.utah.edu!utah-morgan!cs.utexas.edu!swrinde!dptspd!news@network.ucsd.edu
Subject: Project 99713.43: 40M QRP CW xmtr
To: ham-homebrew@ucsd.edu

In article <CCFAtH.2C3@csn.org> dfeldman@teal.csn.org (Dave Feldman) writes:
>OK, I've had it!
>
>Back in high school (circa 1972) I built (out of a hardcover book covering
>projects like this) a 40M CW transmitter containing:
>

> 50L6 tube
> xxx ohm 10 watt wire wound resistor (dropped 117VAC to 50VAC filament)
> A couple of 0.01 uF ceramic discs
> A cathode-bias and grid-leak resistor
> A 7143 kHz FT-243 packaged xtal
> A 2.5 mH RF choke
> A single silicon diode
> A 50 uF 150VDC electrolytic cap
> A couple of air-variable caps & a home-wound coil (pi-net)
>
>The thing put out about 4Watts and I keyed it with a straight key.
>
>It chirped like mad.
>
>My RX was an ARC-5 covering 6-9 MHz or so, and powered by a small
>filament transformer (for the filaments) and another silicon diode and
>electrolytic cap (and maybe a transformer, I don't remember) for the
>B+.
>
>Both were tied *in parallel* at the antenna to my 70 ft wire out the
>bedroom window. No T-R switch; the headphones were simply taken off while
>transmitting (I'm sure most of the power went into the receiver's
>static-drain-off NE-2 light).
>
>BTW, this was my first rig and the *total* out-of-pocket cost was about
>\$5 for *everything* in my shack.

Yeah -- that's because you used -- MY -- ARC-5 receiver. Did I ever get
that thing back?? (!!!!)

Just kidding.

Jeff Browning / KB5PS
jdb@sat.datapoint.com

Date: 27 Aug 93 20:31:18 GMT
From: ogicse!hp-cv!hp-pcd!hpcvsnz!tomb@network.ucsd.edu
Subject: SWR Meters
To: ham-homebrew@ucsd.edu

Tom Bruhns (tomb@lsid.hp.com) (That's me) wrote:
: Gary Coffman (gary@ke4zv.uucp) wrote:

(a couple paragraphs from my earlier posting deleted...)

: : Now this would all be pretty academic if we couldn't separate
: : V_f and V_r so we could measure them. Various bridge type circuits
: : can be used to separate the two wave components by taking advantage
: : of non-reciprocal properties of the bridge circuit. We can also
: : take advantage of the properties of travelling waves in the monimatch
: : to do the same thing. It's difficult to show how to build a VSWR
: : meter without drawings, so I'll refer you to the instrument on
: : page 27-11 of The ARRL Antenna Book for a line section that will
: : work at VHF/UHF and that can be made out of ordinary copper plumbing
: : fixtures.

: Gary earlier in the posting noted that an SWR bridge measures VSWR or
: ISWR rather than SWR. I take some issue with this. I claim that
: almost all bridges that are physically a small fraction of a wavelength
: make their measurement by ratioing current and voltage at a point in
: the line; a true VSWR meter would measure the RMS voltage at at least
: two places on the line (separated, for example, by $1/4$ wavelength in
: the line), but this is NOT the way these meters work. Whether the
: voltage is measured with a transformer, a capacitive divider, or a
: resistive divider, it's the voltage at a single point in the line.
: And at that same point, the current is measured, with a current
: transformer, the voltage drop through a resistor, or as an inductive
: pickup that's also a capacitive pickup monitoring the voltage:
: that is, the parallel wire.

: A forward wave will have $v/i=z$, where i is measured as positive if
: flowing toward the load; a reverse wave will have $v/i=-z$, where i is
: measured as positive is flowing away from the load. The SWR meter
: works by expecting $v-i z=0$ for i measured positive toward the load;
: built in to the meter is an assumption about z ! The meter does NOT
: know the z of the line you are measuring, so if you use a 50 ohm
: meter on a 75 ohm matched line, it will tell you incorrectly that
: the line has an SWR greater than 1:1.

NOTE that a true VSWR meter, one that works by actually measuring the
RMS voltage at some distinct points along the line and NOT measuring the
current at all, will get the right SWR answer independent of line
impedance (assuming it's designed properly...). That is, if you
really measure the SWR as $(V_{rms,max} / V_{rms,min})$, where the max and
min are found by "sliding a voltmeter along the line" as it were,
then the measurement is independent of line impedance. However, this
is !!_NOT_!! the way any of the common SWR bridges work.

: 73, K7ITM

Date: 27 Aug 93 14:26:00 GMT

From: ftpbox!mothost!binford!mcdchg!ast!ast.dsd.northrop.com!melka@uunet.uu.net
Subject: WANTED: Schematics and/or Alignment Procedures for Allied R-100A
To: ham-homebrew@ucsd.edu

After helping my sister clean out my mother's basement, I came across a remnant of my past, an old KnightKit R-100A Receiver. After cleaning it out, and wiping 20+ years of dust off it, it *SURPRISINGLY* still runs! Unfortunately, it is out of alignment and the manual for it is probably in the same place all my unmatched socks are. So, if anybody out there has a manual for a KnightKit R-100A circa 1968 and would be willing to copy the alignment procedures and/or the schematics, I'd be willing to pop for the copy fee and postage. I figure if the INTERNET doesn't have it, nobody does.

Thanks for the effort. Either repost or e-mail is fine.

```
-----+-----  
John F. Melka                | Trucks are the plaque in the arteries  
Technical Advisor [Call pending FCC] | of transportation.  
-----+-----
```

Any Opinions Expressed By The Speaker/Management, May Not Necessarily Be Those
of the Management/Speaker.

Date: Fri, 27 Aug 1993 14:17:01 GMT
From: swrinde!cs.utexas.edu!math.ohio-state.edu!sol.ctr.columbia.edu!
usenet.ucs.indiana.edu!reid.ucs.indiana.edu!reid@network.ucsd.edu
To: ham-homebrew@ucsd.edu

References <93226.175105LEEK@QUCDN.QueensU.CA>, <25fvnj\$1lp@tribune.usask.ca>,
<1993Aug26.171829.2600@cmkrl.com>du
Subject : Re: What kits would you like to see?

Michael Covington (mcovingt@aisun3.ai.uga.edu) wrote:

```
> : I'm getting ready to do some free-lance designing, and would like to  
> : start a discussion...  
>  
> : What kind of kits would you like to see offered by companies like Ramsey  
> : and others in the under-$40-per-kit class?  
>  
> : What kinds of construction projects would you like to see featured in  
> : magazine articles?
```

A popcorn popper, very small, using microwaves or laser to pop a single grain at a time, machine-gun fashion.

|_|=< * * * * * ()-:

--

Frank reid@ucs.indiana.edu

Date: 28 Aug 93 07:09:29 GMT
From: usc!cs.utexas.edu!uwm.edu!biosci!barrnet.net!infoserv!cpuig!
news@network.ucsd.edu
To: ham-homebrew@ucsd.edu

References <930826.135757.9J2.rusnews.w165w@cpuig.infoserv.com>,
<CCE453.BzF@fc.hp.com>, <25k5is\$ogo@vanbc.wimsey.com>
Subject : Re: home-brewed DSP code... suggestions?

mfraser@vanbc.wimsey.com (Mark Fraser) writes:

>
> I just got my TI DSK board, and it's as advertized. Being a real newbie
> I do appreciate the fact theat they gave us the necessary book and a
> simple assembler and debugger.
>

Would you post a summary of its hardware & software features for
us? Also, info on how to order it, etc.? What book(s) are included?

>
> What I would like from the world at large, is a little help with such
> things as a daughter board with more program RAM (or non-volatile
> something or other), and a bit more of atutorial on the assembly
> lang programming of the C26. The assembler, by the way, doesn't do
>

The 1.5K internal RAM on the C26 is more than enough for some
very sophisticated DSP work. It may be a while before you can cook
up something that won't fit, unless you are interested in doing
long FFTs.

> calculations associated with many directives; you have to figure
> out the math yourself and enter the constants as values rather than
> as variables derived from other values....
>
> Particularly interested in mapping (being such a newbie) between the
> "REAL" TI assemblers' directives and ruiles, and the simple one
> that came with the board.
>

Here is a list of resources on the C26.

1. TMS320C2x User's Guide. TI Pub. SPRU014B.

Especially Chapters 4 and 5.

2. Digital Signal Processing Applications With The TMS320 Family: Theory, Algorithms, and Implementations. 3 volumes.
TI Pub. SPRA012A, SPRA016, and SPRA017, respectively.

Of these, vol. 1 and 2 are the most valuable, since vol. 3 is mostly about the C3x family.

3. TI DSP BBS at 1-713-274-2323.

The BBS has a fair amount of source code. Also, you used to be able to order TI technical pubs. (such as the above) by leaving a mail message. Otherwise, TI has a national 800 customer support number that will take document orders if you give them the SPR numbers. The 800 line is not always effective at locating documents by title.

4. TASM: A Table Driven Cross Assembler for the MSDOS Environment (not to be confused with Borland's TASM native MSDOS assembler).

Shareware from:

Thomas N. Anderson
Speech Technology Inc.
837 Front Street South
Issaquah, WA 98072

This used to be available on CompuServe.

This is a very nice -- and quite powerful -- cross-assembler that covers a wide variety of processors, including the C2x family. I found only one (easily fixed) error in the coding of the CONF instruction for the C26. It does allow assembly time expressions using C syntax and operators (but no operator precedence, so you have to use parentheses). Includes a useful preprocessor (like C, but simplified). However, its syntax is not the same as TIs although the assembler mnemonics are. So, you'll need to do a little translation.

I do not know whether you can use this cross-assembler directly with the TI board.

5. Jon Bloom. "Measuring SINAD Using DSP." QEX. June 1993.

Includes a C25 program listing. Bloom (jbloom@arrl.org) is the current editor of QEX.

6. Carlos Puig (that's me). "A Weaver Method SSB Modulator Using DSP." QEX. September 1993 (forthcoming).

The DSP portion was implemented on a homebrewed C26 development board using the abovementioned TASM cross-assembler. The ARRL will be distributing the source code electronically.

You may also need some DSP filter design software. Alternatives include some FORTRAN programs (source code) on the TI BBS (P6 is the Parks-McClellan algorithm), PC-DSP (book and software), or the Student Version of MATLAB (book and software). With any of these inexpensive programs, you will need to write your own utility to convert the design coefficients (floating point) to their fixed point equivalents.

--

Carlos Puig, KJ6ST

cpuig@infoserv.com

Campbell, CA

End of Ham-Homebrew Digest V93 #24
